Notice of Allowability	Application No. 10/654,732	Applicant(s) OHTAKI ET AL.	
	Examiner Jean B. Corrielus	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the phone interview dated 12/7/07*.

2. ☒ The allowed claim(s) is/are *1-6, 8-10, renumbered as 1-9, respectively*.

3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☒ All b) ☐ Some* c) ☐ None of the:
      1. ☒ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Jean B Corrielus
Primary Examiner
Art Unit: 2611
12-7-07

EXAMINER'S AMENDMENT

1. An extension of time under 37 CFR 1.136(a) is required in order to make an examiner's amendment which places this application in condition for allowance. During a telephone conversation conducted on 12/7/07 Siller Gustavo requested an extension of time for 2 MONTH(S) and authorized the Director to charge Deposit Account No. 23-1925 the required fee of $450.00 for this extension and authorized the following examiner's amendment. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

IN THE CLAIMS:

The claims have been amended as indicated in the attached copy of proposed claim amendment from applicant's representative.

The following is an examiner's statement of reasons for allowance: an OFDM demodulator is disclosed. The closest prior art, applicant's admitted prior art fig. 4 discloses similar method and apparatus. However, applicant's admitted prior art does not teach, in combination with the other claimed limitations, the limitations of "a first phase shifter for each antenna group each having a first input coupled to the second antenna of each antenna group, an output of each first phase shifter and an output of the first antenna of each antenna group being combined in a respective one of a

plurality of first adders to provide the respective time domain baseband signal to each of the OFDM demodulators; a first control circuit for each antenna group each coupled to an output of the respective one of the plurality of first adders and to a second input of each first phase shifter; a second phase shifter having a first input coupled to an output of a second OFDM demodulator that is different from a first OFDM demodulator among the OFDM demodulators; a second control circuit coupled to an output of the plurality of OFDM demodulators and to a second input of the second phase shifter; a second adder coupled to an output of the second phase shifter and an output of the first OFDM demodulator"

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Monday-Thursday from 9:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jean B Corrielus
Primary Examiner
Art Unit 2611

12-7-07

Revised Proposed Claims for submission as Examiner's Amendment

Amendments to the Claims:

1. (Currently Amended) An orthogonal frequency division multiplexing (OFDM) receiver comprising:

at least four antennas to receive an OFDM modulated high frequency signal;

a plurality of OFDM demodulators [[to]] each ~~of which a~~ configured to receive a respective time domain baseband signal ~~of a time domain thereto~~ generated based on the high frequency signal ~~is input and from each of which a~~ and to output a respective frequency domain baseband signal ~~of a frequency domain is output~~, wherein each OFDM demodulator is coupled to a respective antenna group, each antenna group containing at least two of the at least four antennas;

a first phase shifter for each antenna group each having a first input coupled to the [[a]] second antenna of each antenna group, an output of [[the]] each first phase shifter and an output of [[a]] the first antenna of each antenna group being combined in a respective one of a plurality of first adders ~~adder~~ to provide the respective time domain baseband signal to each of the OFDM demodulators;

a first control circuit for each antenna group each coupled to an output of the respective one of the plurality of first adders ~~adder~~ and to a second input of each first phase shifter;

a second phase shifter having a first input coupled to an output of a second OFDM demodulator that is different from a first OFDM demodulator among the OFDM demodulators;[[,]]

a second control circuit coupled to an output of the plurality of OFDM demodulators and to a second input of the second phase shifter;

a second adder coupled to an output of the second phase shifter and an output of the ~~second~~ first OFDM demodulator, wherein

a signal is diversity-synthesized by the first phase shifters ~~shifter~~ until the respective time domain baseband signal ~~of the time domain~~ is inputted to each of the OFDM demodulators, and the frequency domain baseband signal output by the second OFDM demodulator ~~of the frequency domain~~ is diversity-synthesized by the second phase shifter.

2. (Currently Amended) The OFDM receiver according to claim 1, wherein the time domain baseband signal generated based on the high frequency signal ~~of the time domain based on the high frequency signal~~ received by the second ~~a first~~ antenna in each of the antenna groups~~, and the baseband signal of the time domain based on the high frequency signal received by a second antenna different from the first antenna are~~ is diversity-synthesized by the first phase shifter of said antenna group.

3. (Currently Amended) The OFDM receiver according to claim 2, wherein each antenna in each antenna group is coupled to a respective one of a

plurality of receiving portions ~~portion~~ each configured to [[that]] frequency-convert ~~converts~~ the high frequency signal to [[an]] a respective intermediate frequency signal and a plurality of A/D converters each coupled to a respective one of the plurality of receiving portions for converting ~~an A/D converter that converts~~ the respective intermediate frequency signal to a respective digital signal ~~is coupled to each of the receiving portions~~, wherein ~~an output of~~ the digital signal output by the ~~a second~~ A/D converter corresponding to the second antenna of each antenna group is coupled to the first phase shifter of said antenna group and ~~an output of a first~~ the digital signal output by the A/D converter corresponding to the first antenna of each antenna group is coupled to the first adder of said antenna group.

4. (Currently Amended) The OFDM receiver according to claim 1, wherein an intermediate frequency signal generated based on the high frequency signal received by the second ~~a first~~ antenna in each of the antenna groups ~~and an intermediate frequency signal based on the high frequency signal received by a second antenna different from the first antenna are~~ is diversity-synthesized by the first phase shifter of said antenna group.

5. (Currently Amended) The OFDM receiver according to claim 4, wherein each antenna in each antenna group is coupled to a respective one of a plurality of receiving portions ~~portion~~ each configured to [[that]] frequency-convert ~~converts~~ the high frequency signal to [[the]] a respective intermediate frequency

signal, and ~~an output~~ the intermediate frequency signal of a first one of the receiving portions corresponding to the first antenna of each antenna group is coupled to the first adder of said antenna group and ~~an output~~ the intermediate frequency signal of a second one of the receiving portions corresponding to the second antenna of each antenna group is coupled to the first phase shifter of said antenna group.

6. (Currently Amended) The OFDM receiver according to claim 1, wherein the high frequency signal received by a first antenna in each of the antenna groups~~, and the high frequency signal received by a second antenna different from the first antenna are~~ is diversity-synthesized by the first phase shifter of said antenna group.

7. (Cancelled)

8. (Currently Amended) The OFDM receiver according to claim 3, ~~further~~ wherein each of the first control circuits comprising power detector to detect electric power of the time domain baseband signal ~~of the time domain~~ and a phase controller to control phase setting of each respective one of said the first phase shifters ~~shifter~~ to maximize the electric power.

9. (Currently Amended) The OFDM receiver according to claim 5, ~~further~~ wherein each of the first control circuits comprising a power detector to

detect electric power of the time domain baseband signal ~~of the time domain~~ and a phase controller to control phase setting of each respective one of said the of the first phase shifters ~~shifter~~ to maximize the electric power.

10. (Currently Amended) The OFDM receiver according to claim 6, ~~further~~ wherein each of the first control circuits comprising a power detector to detect electric power of the time domain baseband signal ~~of the time domain~~, and a phase controller to control phase setting of each respective one of said the first phase shifters ~~shifter~~ to maximize the electric power.

11-12. (Cancelled)